

5 TITLE: VACUUM HOSE WOBBLER

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ABSTRACT

A vacuum hose having a bent or offset structural support means such as a bent rod attached or mounted to a flexible segment of vacuum hose in such a way so as to cause the vacuum hose suction end to move or track in a circular motion parallel to the motion of the bent or offset structural support when it is rotated. A power source such as a hydraulic motor, air motor, DC or AC motor or combustion engine may be used to rotate the bent or offset structural support means. The purpose of causing the suction end of a vacuum hose to move or track in an offset circular motion beyond the center axis of the hose is to increase the area in which the suction end of the hose is in communication. For example, an 8 inch diameter end of a vacuum hose lowered to the surface of the ground would vacuum an area of approximately 8 inches in diameter, but if the center axis of the hose was offset by 8 inches the diameter of the area in contact with the end of the vacuum hose increases to 16 inches in diameter as the hose travels in a circular motion.

BACKGROUND OF THE INVENTION

STATE of the ART vacuuming, with a vacuum hose, is done by a person manually moving the vacuum end of a hose to the point to be vacuumed, using a boom arm to move it into place. There has not been a means to vacuum a hole in the ground larger than the vacuum area of the hose. For example, an 8 inch diameter hose will vacuum approximately an 8 inch diameter hole.

SUMMARY OF THE INVENTION

The present invention relates to a vacuum hose arrangement, which will vacuum a hole into the ground that is twice to three times the diameter of the vacuum hose.

The above-mentioned objective and others are accomplished by the present invention by having a segment of flexible vacuum hose with a structural support rod mounted parallel to the vacuum hose. The support rod will have an offset bend a number of degrees off the original center axis of the vacuum hose. By rotating the bent rod the attached flexible vacuum hose will track parallel to the motion of the bent rod, although the vacuum hose does not rotate.

5 The structural bent rod may be rotated by a power head whose power means may be an electric motor, an air motor, a hydraulic motor or a combustion engine.

 A water nozzle, air nozzle, or vibrator may be added in proximity to the suction end of the vacuum hose to assist in preparing the dirt or other
10 substances to be vacuum able.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG 1- shows a ridged vacuum conduit 2 having a vacuum source attachment 1 and a segment of flexible vacuum hose 6 with the suction end 8 of the hose vacuuming a hole 9 in the earth 10. A bent
15 rod 4 is attached parallel to the vacuum hose by a flexible hose connector 7, a ridged hose connector 5 and a drive support 3. A powered drive motor 3 rotates the bent rod 4, which rotates in the connectors thus causing the flexible vacuum hose 6 to track parallel to the bent rod 4. FIG 1 shows the suction end 8 of the vacuum hose
20 located to the right of the vacuumed hole 9.

FIG 2- is similar to Fig 1 except that FIG 2 shows the suction end 8 of the vacuum hose tracked to the left of the vacuumed hole 9. FIG 2 also shows a water spray nozzle 12 which sprays water 13 under pressure in

5 order to emulsify or make vacuum able the earth 10 to be vacuumed. A
water supply hose 11 provides water 13 under pressure to the nozzle 12.

DESCRIPTION OF THE PREFERRED EMBODIMENT

It is the objective of this invention to provide a vacuum hose having a
10 bent rod 4 attached parallel to it. The angular bend of the rod 4 may be
parallel to a flexible segment 6 of vacuum hose. A connector 7 is securely
attached to the flexible vacuum hose 6 below the angular bend of rod 4.
Connector rod 7 allows rod 4 to rotate within a hole or bearing through
which the rod 4 passes. A similar connector support 5 is located above the
15 angular bend of rod 4. Connector 5 attaches rod 4 parallel to a ridged
portion 2 of vacuum hose. Connector 5 also allows rod 4 to rotate within a
hole or bearing through which the rod 4 passes. A drive support 3 is similar
to support 5 with the addition of mounting means to support a powered drive
motor 3, which is attached to and rotates rod 4. The vacuum hose may have
20 an attachment 1 to attach a vacuum source.

When power head rotary drive motor 3 rotates bent rod 4, it causes the
attached vacuum hose to track parallel to the angular bent rod, thus the
suction end 8 of the vacuum hose is caused to track in a circular motion
covering an area larger than the diameter of the suction end 8 of the hose.

5 The increased track area of the suction end 8 of the vacuum hose allows a
larger hole 9 to be vacuumed into the earth 10. The ability to vacuum a hole
9 in the earth 10 may be improved by using means such as a water nozzle 13
or air nozzle or vibrator to improve the vacuum ability of the earth 10.

WHAT IS CLAIMED:

10 CLAIM 1- a vacuum hose having a ridged rod mounted parallel to the
vacuum hose, said rod having bend angular to the center axis of the vacuum
hose with said rod parallel to a flexible segment of the vacuum hose, a
means to rotate the bent rod and a hole or bearing in the vacuum hose mount
to allow the bent rod to rotate, thus moving the suction end 6 the vacuum
15 hose in a circular motion tracking parallel to the movement of the bent rod.

CLAIM 2- the means in CLAIM 1 having a powered means to rotate the
bent rod, chosen from a hydraulic motor, an air motor, a DC motor, an AC
motor, a combustion engine.

CLAIM 3- the means in CLAIM 1 and 2 having a means to improve the
20 vacuuming ability of the earth chosen from a water nozzle, an air nozzle, or
a vibrator.